WHAT IS CLAIMED IS:

1. An oscillator circuit for performing oscillation by positive feedback of an LC resonant circuit, wherein

said LC resonant circuit includes a parallel resonant circuit formed of an inductance-variable portion allowing variation of an inductance by a switch circuit and a capacitor element.

2. The oscillator circuit according to claim 1, wherein

said inductance-variable portion includes

first and second input/output terminals,

a spiral interconnection layer starting from said first input/output terminal, and formed on a semiconductor substrate with an interlayer insulating film therebetween, and

a plurality of switch circuits having first terminals connected to arbitrary positions on said interconnection layer, and having second terminals commonly connected to said second input/output terminal, and

when one of said plurality of switch circuits is turned on, the position on said interconnection layer connected to said turned-on switch circuit is electrically coupled to said second input/output terminal.

3. The oscillator circuit according to claim 2, wherein

said inductance-variable portion further includes a plurality of second switch circuits each having a first terminal connected to the first terminal of one of said plurality of switch circuits, and having a second terminal connected to the first terminal of another one of said plurality of switch circuits, and

when one of said plurality of switch circuits and one of said plurality of second switch circuits are turned on, the position on said interconnection layer connected to said turned-on switch circuit is electrically coupled to said second input/output terminal.

4. The oscillator circuit according to claim 1, wherein

said inductance-variable portion includes

first and second input/output terminals,

a plurality of spiral interconnection layers starting from said first input/output terminal, and formed on a semiconductor substrate with an interlayer insulating film therebetween, and

said plurality of switch circuits connected between trailing ends of said plurality of interconnection layers and said second input/output terminal, respectively, and

when one of said plurality of switch circuits is turned on, the trailing end of said interconnection layer included in said plurality of interconnection layers and connected to said turned-on switch circuit is electrically coupled to said second input/output terminal.

5. The oscillator circuit according to claim 3, wherein

said switch circuit includes a transistor element to be turned on/off in accordance with a voltage level of a control voltage.

6. The oscillator circuit according to claim 1, wherein

said capacitor element in said LC resonant circuit has a variable capacitance value.

7. An oscillator circuit, comprising:

a pair of transistors cross-coupled to each other; and

an LC resonant circuit of a differential type coupled to said pair of transistors in a feedback manner; wherein

said LC resonant circuit includes

first and second inductance-variable portions including first and second input/output terminals, said second input/output terminals being commonly connected to a fixed node, and said first and second inductance-variable portions being capable of varying inductances, and

a first switch circuit coupled between the first input/output terminals of said first and second inductance-variable portions,

each of said first and second inductance-variable portions has

a spiral interconnection layer starting from said first input/output terminal and formed on a semiconductor substrate with an interlayer insulating film therebetween, and

a plurality of second switch circuits having first terminals connected to arbitrary positions on said interconnection layer and second terminals commonly connected to said second input/output terminal, respectively,

when one of said plurality of second switch circuits is turned on, the position on said interconnection layer connected to said turned-on second switch circuit is electrically coupled to said second input/output terminal, and

when said first switch circuit is turned on in response to the turn-on of said second switch circuit, said first switch circuit electrically couples said first and second inductance-variable portions.

8. An oscillator circuit, comprising:

a pair of transistors cross-coupled to each other; and

an LC resonant circuit of a differential type coupled to said pair of transistors in a feedback manner; wherein

said LC resonant circuit includes

first and second inductance-variable portions including first and second input/output terminals, said second input/output terminals being commonly connected to a fixed node, and said first and second inductance-variable portions being capable of varying inductances, and

a first switch circuit coupled between the first input/output terminals of said first and second inductance-variable portions,

each of said first and second inductance-variable portions has

a plurality of spiral interconnection layers starting from said first input/output terminal and formed on a semiconductor substrate with an interlayer insulating film therebetween, and

a plurality of second switch circuits coupled between trailing ends of said plurality of interconnection layers and said second input/output terminal, respectively,

when one of said plurality of second switch circuits is turned on, the

trailing end of said interconnection layer included in said plurality of interconnection layers and connected to said turned-on second switch circuit is electrically coupled to said second input/output terminal, and

when said first switch circuit is turned on in response to the turn-on of said second switch circuit, said first switch circuit electrically couples said first and second inductance-variable portions.

9. The oscillator circuit according to claim 7, wherein

said first and second inductance-variable portions form a differential inductor element.

10. The oscillator circuit according to claim 7, wherein

each of said first and second switch circuits includes a transistor element to be turned on/off in accordance with a voltage level of a control voltage.

11. The oscillator circuit according to claim 7, wherein

said capacitor element in said LC resonant circuit has a variable capacitance value.

12. An L load differential circuit, comprising an inductor pair including first and second inductance-variable portions having second input/output terminals commonly connected to a fixed node and being capable of varying inductances, and a first switch circuit coupled between first input/output terminals of said first and second inductance-variable portions, wherein

each of said first and second inductance-variable portions has

a spiral interconnection layer starting from said first input/output terminal and formed on a semiconductor substrate with an interlayer insulating film therebetween, and

a plurality of second switch circuits having first terminals connected to arbitrary positions on said interconnection layer and second terminals commonly connected to said second input/output terminal, respectively,

when one of said plurality of second switch circuits is turned on, the position on said interconnection layer connected to said turned-on second switch circuit is electrically coupled to said second input/output terminal, and

when said first switch circuit is turned on in response to the turn-on of said second switch circuit, said first switch circuit electrically couples said first and second inductance-variable portions.

13. An L load differential circuit, comprising an inductor pair including first and second inductance-variable portions having second input/output terminals commonly connected to a fixed node and being capable of varying inductances, and a first switch circuit coupled between first input/output terminals of said first and second inductance-variable portions, wherein

each of said first and second inductance-variable portions has

a plurality of spiral interconnection layers starting from said first input/output terminal and formed on a semiconductor substrate with an interlayer insulating film therebetween, and

a plurality of second switch circuits coupled between trailing ends of said plurality of interconnection layers and said second input/output terminal, respectively,

when one of said plurality of second switch circuits is turned on, the trailing end of said interconnection layer included in said plurality of interconnection layers and connected to said turned-on second switch circuit is electrically coupled to said second input/output terminal, and

when said first switch circuit is turned on in response to said turn-on of said second switch circuit, said first switch circuit electrically couples said first and second inductance-variable portions.